AMENDMENTS TO THE CLAIMS

Please amend claims 1, 8 and 9 as follows.

1. (currently amended) A Mach-Zehnder interferometer modulator for modulating a beam of laser light, the modulator comprising a pair of separate waveguides through which the laser light is passed after splitting in a splitting zone and after which the light is recombined in a merge zone, the waveguides being formed of a material having electro-optic properties and there being provided opposed pairs of electrodes electrically located so as to be able to effect optical changes within the material of the waveguides, wherein the waveguides are formed in a semiconductor in a semiconductor material with one of the electrodes of each pair being formed in a doped layer, said doped layer being of relatively high conductivity compared to the semiconductor material, buried within or below the waveguide material whilst the other electrode, a top electrode, is a surface metalisation, the doped layer being trenched so that adjacent electrodes in the ~~coped~~ doped layer are electrically isolated from one another so that one of the electrodes in the doped layer can be connected with a different electrical polarity to the other electrode in the doped layer thereby permitting the connection of the pairs of electrodes in parallel anti-phase mode.

2. (previously presented) The modulator as claimed in claim 1, further comprising a coplanar stripline transmission-line for an RF signal comprising a pair of metal rails arranged on either side of the pair of waveguides, each rail effecting direct contact to the buried electrode of the adjacent waveguide while also effecting contact to the top electrode of the remote waveguide by means of metal linkages passing through or over the adjacent waveguide.

3. (previously presented) A modulator as claimed in claim 1, further comprising a coplanar waveguide transmission-line for an RF signal having three rails, a central rail at one potential and located between the waveguides, and two outer rails at the same, second, potential which differs from the first potential, with each waveguide of the pair of waveguides running in one of the two inter-rail gaps, the central rail effecting direct contact

to the buried electrode of the first waveguide and contacting the top electrode of the second waveguide by means of metal linkages, the top electrode of the first waveguide being contacted by means of metal linkages from the first outer rail, and the second outer rail being in direct contact to the buried electrode of the second waveguide.

4. (previously presented) The modulator as claimed in claim 3, wherein the doped layer extends beneath the first outer rail, and there is provided a trench through the doped layer so as to isolate the region of the doped layer beneath the first waveguide form that beneath the first outer rail.

5. (previously presented) The modulator as claimed in claim 1, further comprising a coplanar stripline transmission-line for an RF signal having a pair of metal rails arranged on either side of the pair of waveguides , each rail having a width sufficient to enable capacitive connection to the buried electrode over which it is located and effecting thereby high frequency contact to the buried electrode of the adjacent waveguide while also effecting contact to the top electrode of the remote waveguide by means of metal linkages passing through or over the adjacent waveguide.

6. (previously presented) The modulator as claimed in claim 1, further comprising a coplanar waveguide transmission-line for an RF signal comprising three rails, a central rail at one potential and located between the waveguides, and two outer rails at the same, second, potential, with each waveguide of the pair of waveguides running on one of the two inter-rail gaps, the central rail and one of the outer rails being of sufficient width to enable those rails to make capacitance contact with their opposed buried electrodes, the central rail effecting capacitive contact to the buried electrode of the first waveguide and contacting the top electrode of the second waveguide by means of metal linkages, the top electrode of the first waveguide being contacted by means of metal linkages from first outer rail, and the second outer rail being in capacitive contact to the buried electrode of the second waveguide, the capacitive contacts being effective electrical contacts for high frequency alternating signals.

7. (previously presented) The modulator as claimed in claim 6, wherein the doped layer extends beneath the first outer rail, and there is provided a trench through the doped layer so

as to isolate the region of the doped layer beneath the first waveguide from that beneath the first outer rail.

8. (currently amended) The modulator as claimed in claim 1, ~~further comprising~~ wherein the pair of separate waveguides comprises an active region and a passive ~~waveguide~~ region, the passive region being arranged ~~trenched as in the active regions~~ between the active ~~regions~~ region and the merge zone.

9. (currently amended) The modulator as claimed in claim 1, ~~further comprising~~ wherein the pair of separate waveguides comprises an active region and a passive ~~waveguide~~ region, the passive region being arranged ~~trenched as in the active regions~~ between the active ~~regions~~ region and the ~~splitter~~ splitting zone.

10. (previously presented) The modulator as claimed in claim 1, wherein the conductivity in the doped area is locally removed in the region of the merge zone.

11. (previously presented) The modulator as claimed in claim 1, wherein the conductivity in that doped area is locally removed in the region of the splitter zone.

12. (previously presented) The modulator as claimed in claim 1, wherein the semiconductor material is based on GaAs, and the waveguides are formed in GaAs bounded by layers of AlGaAs.

13. (previously presented) The modulator as claimed in claim 1, wherein the semiconductor material is selected from the group InGaAsP, or GaInAsP or GaAlInP and the bounding layer is InP.

14. (previously presented) The modulator as claimed in claim 1 wherein the electrode formed by surface metalisation is a Schottky rectifying contact.

15. (previously presented) The modulator as claimed in claim 1, wherein the electrode formed by surface metalisation is an ohmic contact to a p-doped under layer.

16. (canceled)